

IUBMB Enzyme Nomenclature

EC 6.4.1.1

Common name: pyruvate carboxylase

Reaction: ATP + pyruvate + HCO₃⁻ = ADP + phosphate + oxaloacetate

Other name(s): pyruvic carboxylase

Systematic name: pyruvate:carbon-dioxide ligase (ADP-forming)

Comments: A biotinyl-protein containing manganese (animal tissues) or zinc (yeast). The animal enzyme requires acetyl-CoA.

Links to other databases: [BRENDA](#), [EXPASY](#), [GTD](#), [KEGG](#), [WIT](#), CAS registry number: 9014-19-1

References:

1. McClure, W.R., Lardy, H.A. and Kneifel, H.P. Rat liver pyruvate carboxylase. I. Preparation, properties, and cation specificity. *J. Biol. Chem.* 246 (1971) 3569-3578. [Medline UI: [71205235](#)]
2. Scrutton, M.C., Young, M.R. and Utter, M.F. Pyruvate carboxylase from baker's yeast. The presence of bound zinc. *J. Biol. Chem.* 245 (1970) 6220-6227. [Medline UI: [71051159](#)]
3. Seubert, W. and Remberger, U. Renigung und Wirkungsweise der Pyruvatcarboxylase aus *Pseudomonas citronellolis*. *Biochem. Z.* 334 (1961) 401-414.
4. Utter, M.F. and Keech, D.B. Pyruvate carboxylase. I. Nature of the reaction. *J. Biol. Chem.* 238 (1963) 2603-2608.

[EC 6.4.1.1 created 1961]

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2+3?

IUBMB Enzyme Nomenclature

EC 4.1.1.31

Common name: phosphoenolpyruvate carboxylase

Reaction: phosphate + oxaloacetate = H₂O + phosphoenolpyruvate + CO₂

Other name(s): phosphopyruvate (phosphate) carboxylase; PEP carboxylase; phosphoenolpyruvic carboxylase; PEPC; PEPCase

Systematic name: phosphate:oxaloacetate carboxy-lyase (phosphorylating)

Links to other databases: [BRENDA](#), [EXPASY](#), [KEGG](#), [WIT](#), CAS registry number: 9067-77-0

References:

1. Chen, J.H. and Jones, R.F. Multiple forms of phosphoenolpyruvate carboxylase from *Chlamydomonas reinhardtii*. *Biochim. Biophys. Acta* 214 (1970) 318-325. [Medline UI: [71125113](#)]
2. Mazelis, M. and Vennesland, B. Carbon dioxide fixation into oxalacetate in higher plants. *Plant Physiol.* 32 (1957) 591-600.

[EC 4.1.1.31 created 1961]

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(FILE 'HOME' ENTERED AT 07:40:34 ON 04 JUN 2002)

FILE 'MEDLINE, AGRICOLA, CAPLUS, BIOSIS, EMBASE, WPIDS' ENTERED AT
07:41:11 ON 04 JUN 2002

L1 186 S CORYNE? AND PYC
L2 0 S L1 AND DAPA!
L3 101 S L1 AND DAPA
L4 71 S L3 AND LYSC
L5 70 S L4 AND LYSE
L6 55 DUP REM L5 (15 DUPLICATES REMOVED)
L7 13 S L6 NOT PY>2001
L8 73 DUP REM L3 (28 DUPLICATES REMOVED)
L9 0 S L8 NOT PY>1999
L10 120 S L1 AND LYSC
L11 90 DUP REM L10 (30 DUPLICATES REMOVED)
L12 0 S L11 NOT PY>1999
L13 93 S L1 AND LYSE
L14 0 S L13 NOT PY>1999
L15 46274 S CORYNEFORM OR CORYNEBACTERI? OR GLUTAMICUM
L16 276 S L15 AND (PYC OR (PYRUVATE (W) CARBOXYLASE))
L17 102 S L16 AND (DAPA OR (DIHYDROKIPICOLINATE (W) SYNTHASE))
L18 0 S L17 NOT PY>1999
L19 131 S L16 AND (LYSC OR (ASPARTATE (W) KINASE))
L20 1 S L19 NOT PY>1999

FILE 'STNGUIDE' ENTERED AT 07:57:20 ON 04 JUN 2002

FILE 'MEDLINE, AGRICOLA, CAPLUS, BIOSIS, EMBASE, WPIDS' ENTERED AT
07:59:19 ON 04 JUN 2002

=> s l16 and (lyse or (lysine (w) exporter))
L21 98 L16 AND (LYSE OR (LYSINE (W) EXPORTER))

=> s l21 not py>1999
L22 0 L21 NOT PY>1999

=>
Con

	L #	Hits	Search Text	DBs
1	L1	4	(ma16 or mc20) and coryne\$	USPAT; US-PGP UB; EPO; JPO; DERWEN T
2	L2	27	dapA and pyc and lysc and lyse	USPAT; US-PGP UB; EPO; JPO; DERWEN T
3	L3	2210	CORYNEFORM OR CORYNEBACTERI? OR GLUTAMICUM	USPAT; US-PGP UB; EPO; JPO; DERWEN T
4	L6	32	14 and (LYSC OR (ASPARTATE adj KINASE))	USPAT; US-PGP UB; EPO; JPO; DERWEN T
5	L5	29	14 and (DAPA OR (DIHYDROKIPICOLINATE adj SYNTHASE))	USPAT; US-PGP UB; EPO; JPO; DERWEN T
6	L7	50	14 and (LYSE OR (LYSINE (W) EXPORTER))	USPAT; US-PGP UB; EPO; JPO; DERWEN T

	L #	Hits	Search Text	DBs
7	L8	40	pyc and carboxylase	USPAT; US-PGP UB; EPO; JPO; DERWEN T
8	L9	0	pyc and eikmanns.in.	USPAT; US-PGP UB; EPO; JPO; DERWEN T
9	L10	4	carboxylase and eikmanns.in.	USPAT; US-PGP UB; EPO; JPO; DERWEN T
10	L11	0	pcx and eikmanns.in.	USPAT; US-PGP UB; EPO; JPO; DERWEN T
11	L12	4	pyruvate and eikmanns.in.	USPAT; US-PGP UB; EPO; JPO; DERWEN T
12	L4	58	l3 and (PYC OR (PYRUVATE adj CARBOXYLASE))	USPAT; US-PGP UB; EPO; JPO; DERWEN T

	L #	Hits	Search Text	DBs
13	L13	4	"19831609"	USPAT; US-PGP UB; EPO; JPO; DERWEN T
14	L14	3	"19831609" and dapa	USPAT; US-PGP UB; EPO; JPO; DERWEN T
15	L15	46	dapa and lyse	USPAT; US-PGP UB; EPO; JPO; DERWEN T
16	L16	46	dapa and lyse and lysine	USPAT; US-PGP UB; EPO; JPO; DERWEN T
17	L17	3	5243039.pn.	USPAT; US-PGP UB; EPO; JPO; DERWEN T
18	L18	29	aspartokinase and glutamicum	USPAT; US-PGP UB; EPO; JPO; DERWEN T

	L #	Hits	Search Text	DBs
19	L19	130	DIHYDROdIPICOLINATE adj SYNTHASE	USPAT; US-PGP UB; EPO; JPO; DERWEN T
20	L20	3778	119 and glutamicum or brevibacterium	USPAT; US-PGP UB; EPO; JPO; DERWEN T
21	L21	55	119 and (glutamicum or brevibacterium)	USPAT; US-PGP UB; EPO; JPO; DERWEN T
22	L22	53	119 and (glutamicum or brevibacterium) and lysine	USPAT; US-PGP UB; EPO; JPO; DERWEN T
23	L23	30	14 and (DAPA OR (DIHYDROdIPICOLINATE adj SYNTHASE))	USPAT; US-PGP UB; EPO; JPO; DERWEN T